

PROPOSED REMEDIAL ACTIONS FOR THE
LOCKHEED FACILITIES IN BURBANK

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CALIFORNIA REGIONAL WATER
QUALITY BOARD
LOS ANGELES REGION

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JOSEPH L. HEGENBART

AUG 24 1987

The chemical analysis of soil and groundwater samples collected from the 12 monitoring wells within the Lockheed property indicated that the area under the property is highly contaminated with volatile organic compounds (VOC), mainly perchloroethylene (PCE), and trichloroethylene (TCE).

Extensive monitoring of water supply wells in the San Fernando Valley, which provides drinking water to the cities of Los Angeles, Burbank and Glendale, indicate that TCE and PCE is spreading to the new wells of the area at a rate of four wells per year by TCE and about three wells per year by PCE. Since the discovery of these chemicals in 1980, twenty-five additional wells have been contaminated by TCE and fifteen new wells by PCE. It is imperative that an expeditious remedial action is undertaken so that this valuable source of water in the San Fernando Valley is protected from further degradation.

REMEDIAL ACTION

There are a number of remedial alternatives that can be utilized to clean up the groundwater contamination in the Lockheed facility. These alternatives, which include source control and plume blocking, can be used independently or in combination.

SOURCE CONTROL

Review of groundwater monitoring results at the Lockheed site clearly indicates that sources of contamination lie within

the property (e.g., plants B-1, B-6, A-1). Because of this, one of the most efficient ways to remove the contaminants from the groundwater is to pump water from the area immediately adjacent to the source. The efficiency of this technique results from pumping more concentrated water than would be found some distance away from the source, which means that less water needs to be pumped to remove a given amount of contamination.

PLUME BLOCKING

Since the contamination plume(s) threaten the potable water source in the San Fernando Valley Groundwater Basin (SFVGB), it may be possible to block the spread of contamination by pumping water at the leading edge of the plume. The contaminant concentrations expected from this operation are not as high as those typically found near the source.

HANDLING THE EXTRACTED WATER

Since the contaminated groundwater is the significant source of water supply in the area, the most rigorous treatment standards apply. In addition to the State Action Levels, EPA has set Maximum Contaminant Levels (MCLs) for VOC in drinking water. MCLs are enforceable standards. The EPA has based MCLs on health, treatment technologies, cost and other factors. For handling of extracted groundwater, see the following options.

TREATMENT OPTIONS

There are a number of proven treatment technologies that can be used to treat both contaminated soil and groundwater.

Among the treatment technologies, packed tower air stripping and Granular Activated Carbon (GAC) are the most common alternatives. Each of these methods can be utilized to effectively remove the contaminants from the water matrix.

Another treatment method which is currently under serious consideration is the use of ozone/hydrogen peroxide to "oxidize", or destroy organic compounds. If this method is fully developed, it has the advantage of destroying the VOCs without any known disadvantages (e.g., air emission, disposal of spent carbon, etc.).

The extraction wells should be located within the Lockheed property at the source and off of the property in the vicinity of the existing Burbank wells (e.g., PSD-14A, PSD-10 and PSD-17) to contain the plume(s). The following alternatives can be used by Lockheed to handle the treated groundwater:

- o 25AF/yr Lockheed's physical solution* pumping right (must pay Burbank for this water and subtract from Burbank's stored water account).
- o 5AF Allowed for groundwater quality sampling (no payback required).
- o To be determined Water cleaned up and re-injected (non-consumptive - no payback required).
- o To be determined Water cleaned up and discharged in an acceptable manner.

* Lockheed may use this water for any purpose as long as it meets water quality standards for intended use.

INITIAL REQUIREMENTS

1. Prepare a plan to demonstrate and document that contamination on site can be stopped in accordance with the Regional Board's time schedule.

2. Remove contamination sources including tanks, clarifiers, sumps, etc. and adjacent soils.
3. Provide additional monitoring wells off site along westerly boundaries of previously-owned property and elsewhere to define extent of plumes and to provide assurances that contamination is contained as close to Lockheed property as possible.
4. Drill, equip and pump wells(s) on site to treat high concentrations of contaminants.
5. Immediately arrange with Burbank for treatment and pumping of Burbank wells to provide plume(s) blocking to DWP North Hollywood, Erwin, Whitnall, and Verdugo well fields and provide treatment to Los Angeles wells and any required new wells at the downstream edge of the contamination.
6. Compensation to the City of Los Angeles and others for damages to be determined.
7. These initial requirements may not effectively address the entire contamination problem caused by Lockheed, but are viewed as an initial good faith effort.

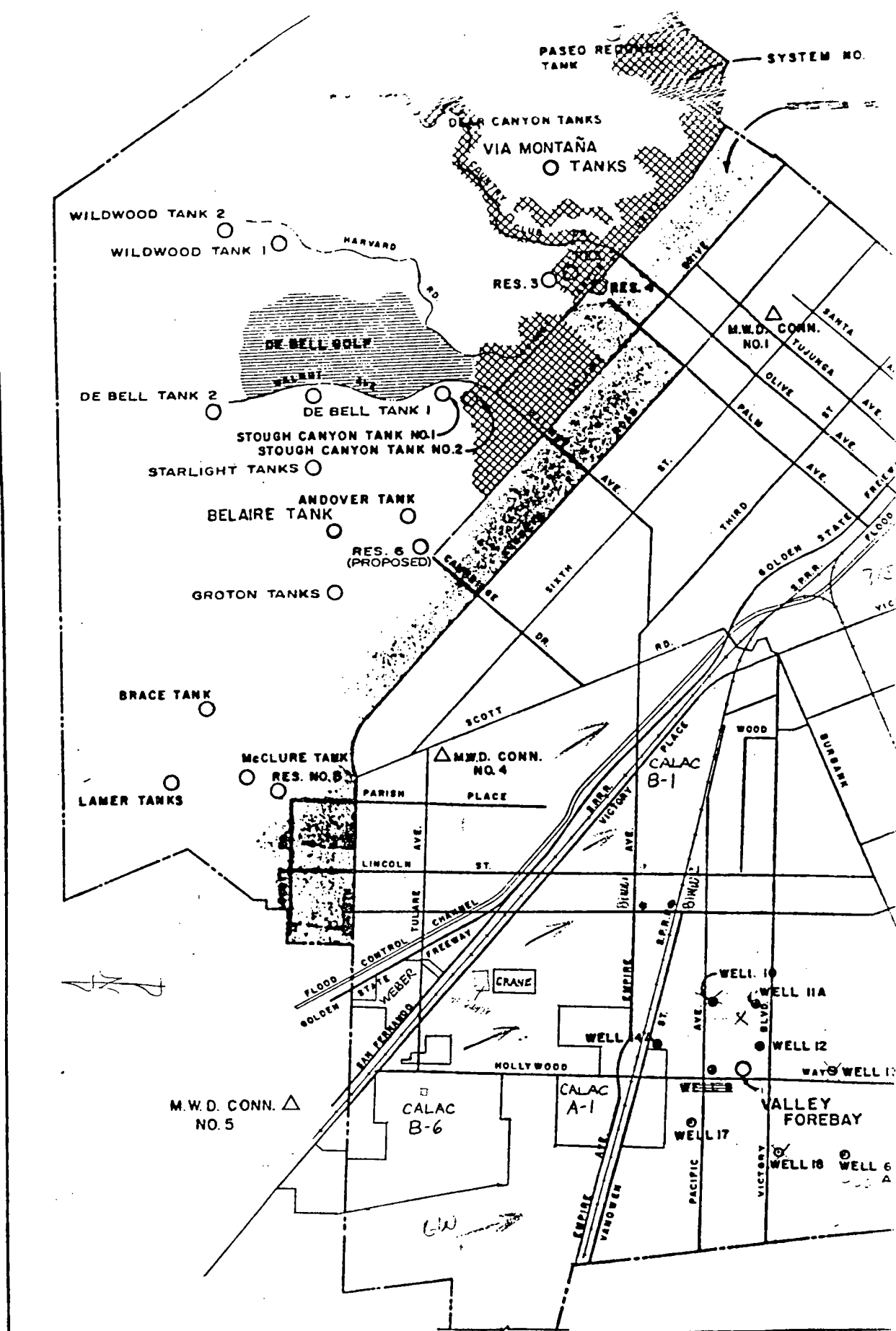
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TO: Hank Yacoub
FROM: Al Novak 8/25/87
SUBJECT: Burbank's comments on CALAC interim RAP.

I spoke to Fred Lantz on 8/25/87 about the above-referenced subject. His main concerns about the RAP are: 1. Burbank's contaminated wells are not included, and 2. The watermaster is not included as a member of the ad hoc committee. He said he would have his written comments to us by Friday 8/28/87.

I asked him which wells Burbank felt would be best for intercepting the contaminant plume. He said that he thinks the wells closest to CALAC should be pumped. He thinks that 14A and 10 should be first. Then 11 and 17. Finally 6, 13 and 18 (see attached map).

Al Novak
8/25/87



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION

107 SOUTH BROADWAY, SUITE 4027
LOS ANGELES, CALIFORNIA 90012-4596
(213) 620-4460



August 26, 1987

Mr. R. R. Heppe
President
Lockheed-California Company
P.O. Box 551
Burbank, CA 91520-3903

LOCKHEED-CALIFORNIA COMPANY (CALAC) REMEDIAL ACTION PLAN (RAP)

Plant A-1 (ID #915200016)
Plant B-6 (ID #915200025)
Plant B-1 (ID #915200034)
Plant C-1 (ID #915200043)

On August 21, 1987, representatives of CALAC met with members of my staff to deliver a copy of a RAP outline and time schedule. This RAP contains the proposed interim remedial measures to be taken by CALAC to clean up the contaminated ground water and soil beneath Building 175, Plant B-1.

Based on my staff's review of the RAP outline, we are granting conditional approval to proceed with the development of the detailed RAP for these interim remedial measures. The following are our comments and conditions for approval according to the task numbers used in the outline:

- 2.1.1.1. Data and technical literature are already available on the behavior and attenuation of chlorinated hydrocarbons in the subsurface soil strata.
- 2.1.1.2. The pilot testing of contaminant removal processes and the various cleanup technologies are well documented.
- 2.1.1.4. The 3-D modeling should concentrate on determining whether the plume(s) could have migrated to the wells owned by Department of Water and Power during heavy pumping in 1958 and 1976-77. Additional off-site ground water monitoring wells must be provided from the westerly boundaries of your property and other key off-site locations. These wells are needed to define the extent of the plume(s) and to provide containment and cleanup of the contamination as close to CALAC property as possible.

Mr. R. R. Heppe
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- 2.1.1.6. South Coast Air Quality Management District advises us that a health risk assessment study is needed if air stripping treatment is used.
- 2.1.2.1. On the basis of the most recent ground water quality data on City of Burbank water wells, it is evident that at least one plume beneath CALAC is migrating down-gradient to other Burbank water supply wells. There is an urgent need to contain this plume and prevent it from contaminating additional drinking water wells. CALAC is therefore directed to contact City of Burbank about the inclusion of some of the contaminated Burbank wells in the ground water cleanup plan.
- 2.1.2.2. The air stripping alternative may not deliver the desired water quality. Also, the use of this type of system may delay the cleanup because of the lengthy permitting process.
- 2.2. The source abatement and cleanup program must include the abandoned waste disposal site at Plant B-1.
- 2.2.1.3. CALAC must consider excavation of the most highly contaminated soils in the source abatement program.

In addition, we are still concerned about any contamination which may have originated at Plant B-5 during the years that this facility was being leased and operated by CALAC. If this site is not investigated, we will recommend it for inclusion on the State and EPA's Superfund list for investigation and cleanup as warranted.

As this program progresses, and more data are gathered, we may have additional recommendations to make. In the meantime, we remain available to work with representatives of CALAC, your consultant and other concerned agencies on this project.

If you have any questions or if you would like to discuss these comments further, please call me at (213) 620-4460, or have a member of your staff contact Mr. Hank Yacoub at (213) 620-4397.



 ROBERT P. GHIRELLI, D.Env.
Executive Officer

HHY/aen

cc: see page 3

Mr. R. R. Heppe
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cc: Regional Board Members

Ms. Patti Cleary, EPA-Region IX
Ms. Bonnie J. Wolstoncroft, State Water Resources Control
Board, Office of Chief Counsel
Mr. Robert S. Ford, State Water Resources Control Board
Mr. Gary H. Yamamoto, California Department of Health
Services, Sanitary Engineering Branch
Mr. Nestor O. Acedera, California Department of Health
Services, Toxic Substances Control Division
Mr. M. Michael Mohajer, Los Angeles County Department of
Public Works, Waste Management Division
Office of the Mayor, City of Los Angeles
Office of the Mayor, City of Burbank
Office of the Mayor, City of Glendale
Mr. Steven Takowsky, City of Los Angeles, Office of City
Attorney
Mr. Duane Georgeson, Los Angeles Department of Water
and Power
Mr. James J. King, Los Angeles Department of Water and
Power, Water Quality Division
Mr. Melvin L. Blevins, Upper Los Angeles Area Watermaster
Mr. Thomas H. McCauley, Burbank Public Service Department
Mr. Michael Kent, Citizens for a Better Environment
Mr. Robert L. Miland, Lockheed-California Company
Mr. Terry Carberry, Lockheed-California Company
Mr. Dean O. Gregg, Gregg and Associates, Inc.

Original Delivered to Lockheed -
California Co 8/27/87

CITY OF LOS ANGELES PROPOSED GROUNDWATER CONTAMINATION
REMEDIAL ACTIONS FOR THE LOCKHEED FACILITIES IN BURBANK

0818

BACKGROUND

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Another treatment method which is currently under serious consideration is the use of ozone/hydrogen peroxide to "oxidize", or destroy organic compounds. If this method is fully developed, it has the advantage of destroying the VOCs without any known disadvantages (e.g., air emission, disposal of spent carbon, etc.).

The extraction wells should be located within the Lockheed property at the source and off of the property in the vicinity of the existing wells to contain the plume(s). The following are some alternatives which could be used by Lockheed to handle the treated groundwater:

- o 25AF/yr Lockheed's physical solution* pumping right (must pay Burbank for this water and subtract from Burbank's stored water account).
- o 5AF Allowed for groundwater quality sampling (no payback required).
- o To be determined Water cleaned up and re-injected (non-consumptive - no payback required).
- o To be determined Water cleaned up and discharged in an acceptable manner.

* Lockheed may use this water for any purpose as long as it meets water quality standards for intended use.

INITIAL REQUIREMENTS

1. Demonstrate that contamination on site can be stopped from spreading on or off the property.

2. Remove contamination sources including tanks, clarifiers, sumps, etc. and adjacent soils.
3. Provide additional monitoring wells both on and off site along westerly boundaries of previously-owned property and elsewhere to define extent of plumes and to provide assurances that contamination is contained as close to Lockheed property as possible.
4. Drill, equip and pump wells(s) on site to treat high concentrations of contaminants.
5. Immediately arrange with Burbank and Los Angeles for treatment and pumping of wells to provide plume(s) blocking to Burbank and DWP's North Hollywood, Erwin, Whitnall, and Verdugo well fields and provide treatment to Los Angeles wells and any required new wells at the downstream edge of the contamination.
6. Compensation to the Cities of Burbank and Los Angeles and others for damages to be determined.
7. Redrill on site well B1-MW1 deeper until the full depth of the pollutants are determined.
8. Provide a facilities map showing historical locations of the shops and other buildings where these chemicals could have been used on the property.

9. These initial requirements may not effectively address the entire contamination problem caused by Lockheed, but are viewed as an initial good faith effort.

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